To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: http://www.renesas.com

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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RENESAS

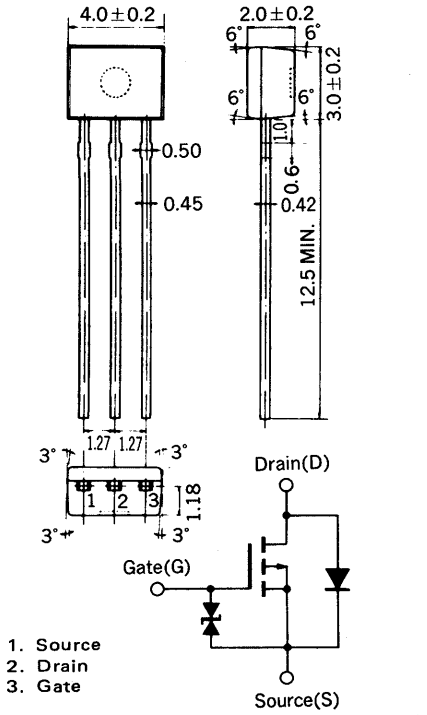
MOS FIELD EFFECT TRANSISTOR

Phase-out/Discontinued

2SJ184

P-CHANNEL MOS FET
FOR HIGH-SPEED SWITCHING

OUTLINE DIMENSIONS (Unit : mm)



(Diode in the figure is the parasitic diode.)

The 2SJ184, P-channel vertical type MOS FET, is a switching device which can be driven by 2.5 V power supply.

As the MOS FET is driven by low voltage and does not require consideration of driving current, it is suitable for appliances including VTR camera and headphone stereos which need power saving.

FEATURES

- Directly driven by ICs having a 3 V power supply.
- Not necessary to consider driving current because of its high input impedance.
- Possible to reduce the number of parts by omitting the bias resistor.
- Complementary to 2SK1398

QUALITY GRADE

Standard

Please refer to "Quality grade on NEC Semiconductor Devices" (Document number IEI-1209) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

ABSOLUTE MAXIMUM RATINGS (T_a = 25 °C)

CHARACTERISTIC	SYMBOL	RATINGS	UNIT	TEST CONDITIONS
Drain to Source Voltage	V_{DSS}	−50	V	V_{GS} = 0
Gate to Source Voltage	V_{GSS}	∓7.0	V	V_{DS} = 0
Drain Current	$I_{D(DC)}$	∓100	mA	
Drain Current	$I_{D(pulse)}$	∓200	mA	PW ≦ 10 ms, Duty Cycle ≦ 50 %
Total Power Dissipation	P_T	250	mW	
Operating Temperature	T_{opt}	−55 to +80	°C	
Storage Temperature	T_{stg}	−55 to +150	°C	

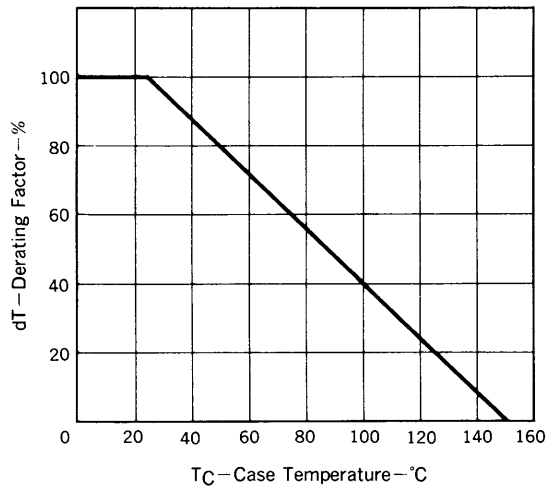
Document No. TC−2319
(O.D.No. TC−7645A)
Date Published April 1991 M
Printed in Japan

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

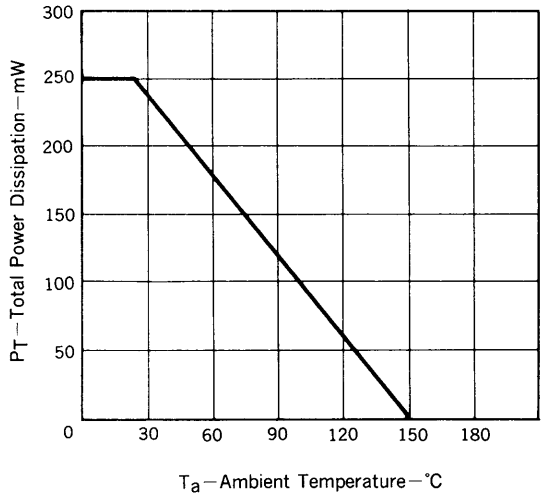
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Drain Cut-off Current	I_{DSS}			−10	μA	V_{DS} = −50 V, V_{GS} = 0
Gate Leakage Current	I_{GSS}			∓5	μA	V_{GS} = ∓7 V, V_{DS} = 0
Gate Cut-off Voltage	$V_{GS(off)}$	−1.2	−1.6	−2.0	V	V_{DS} = −3 V, I_D = −1 μA
Forward Transfer Admittance	$\|y_{fs}\|$	20	42		mS	V_{DS} = −3 V, I_D = −10 mA
Drain to Source On-State Resistance	$R_{DS(on)1}$		25	40	Ω	V_{GS} = −2.5 V, I_D = −1 mA
Drain to Source On-State Resistance	$R_{DS(on)2}$		13	20	Ω	V_{GS} = −4.0 V, I_D = −10 mA
Input Capacitance	C_{iss}		22		pF	V_{DS} = −3 V, V_{GS} = 0, f = 1 MHz
Output Capacitance	C_{oss}		12		pF	
Feedback Capacitance	C_{rss}		4		pF	
Turn-On Delay Time	$t_{d(on)}$		80		ns	$V_{GS(on)}$ = −3 V, R_G = 10 Ω, V_{DD} ≒ −3 V, I_D = −20 mA, R_L = 150 Ω
Rise Time	t_r		230		ns	
Turn-Off Delay Time	$t_{d(off)}$		40		ns	
Fall Time	t_f		70		ns	

TYPICAL CHARACTERISTICS (T_a = 25 °C)

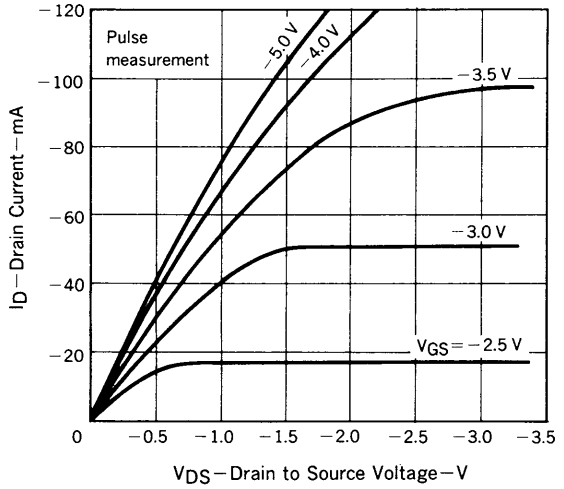
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



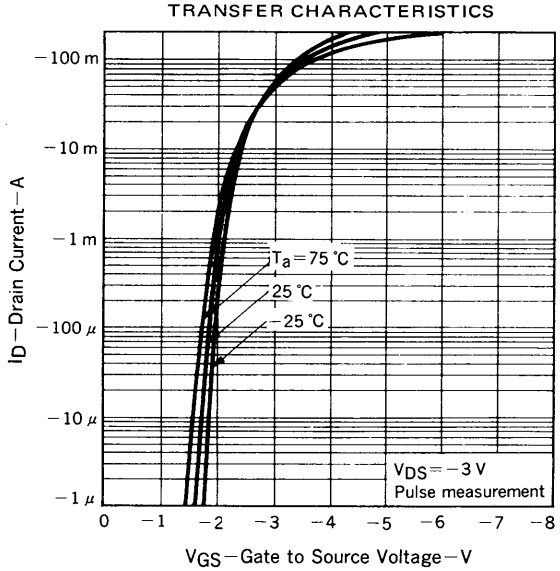
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



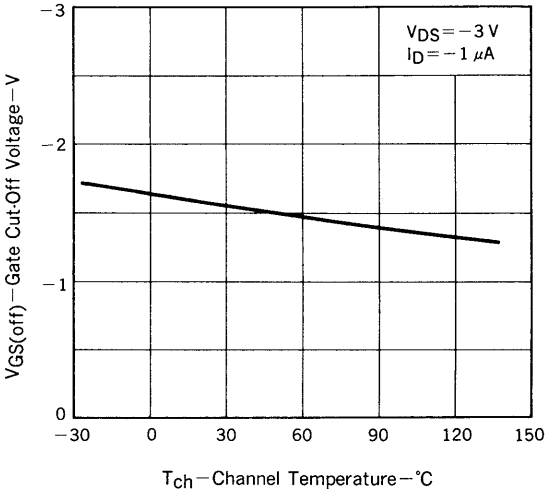
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



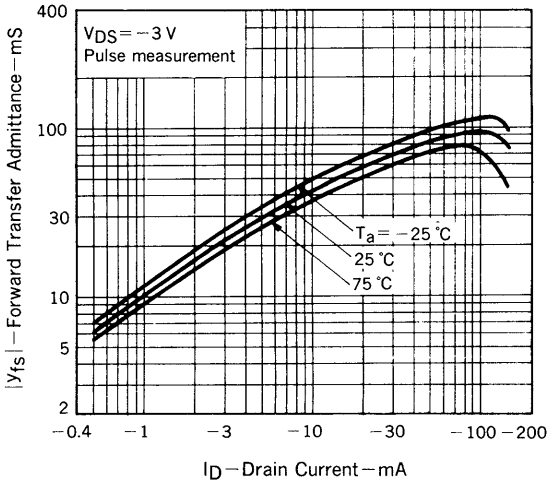
TRANSFER CHARACTERISTICS



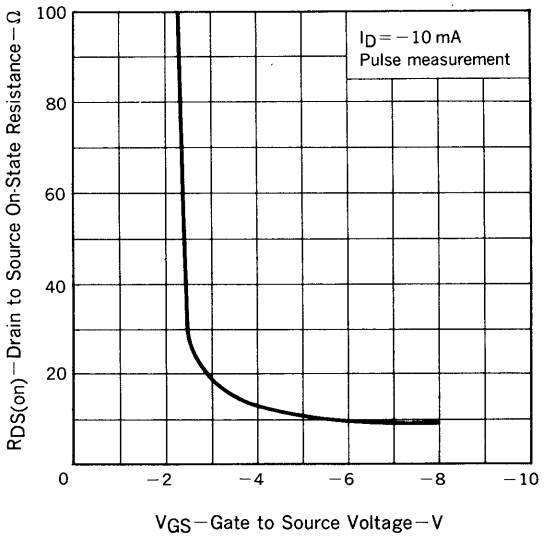
GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



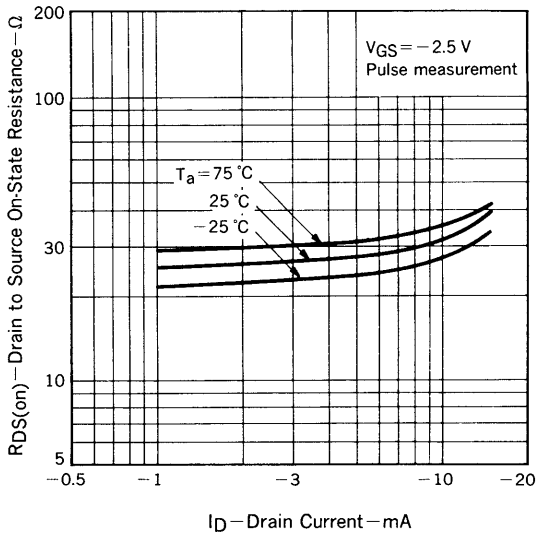
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



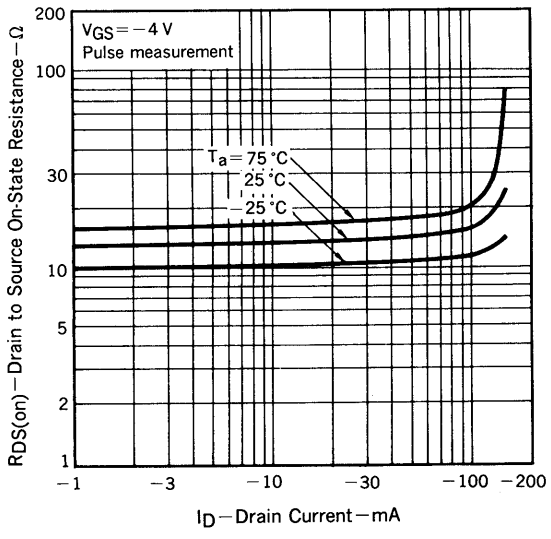
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



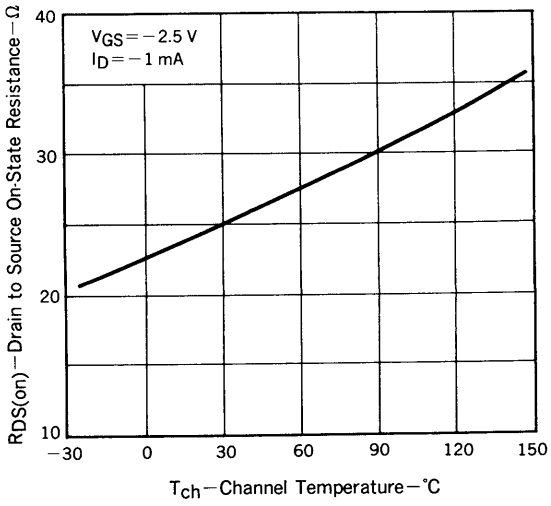
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



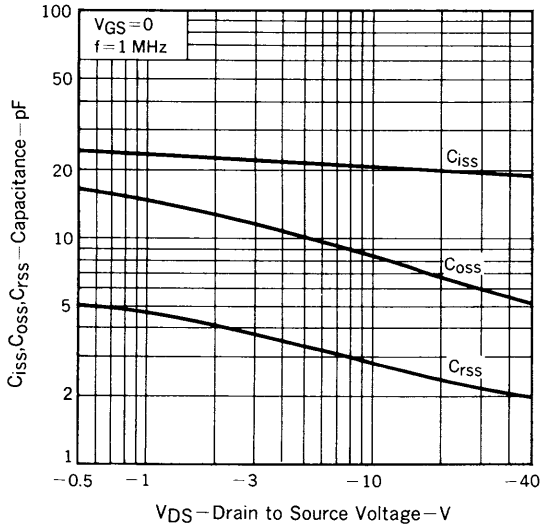
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



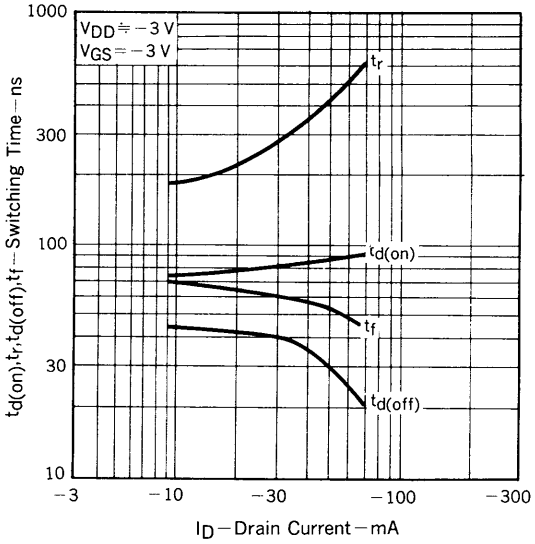
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



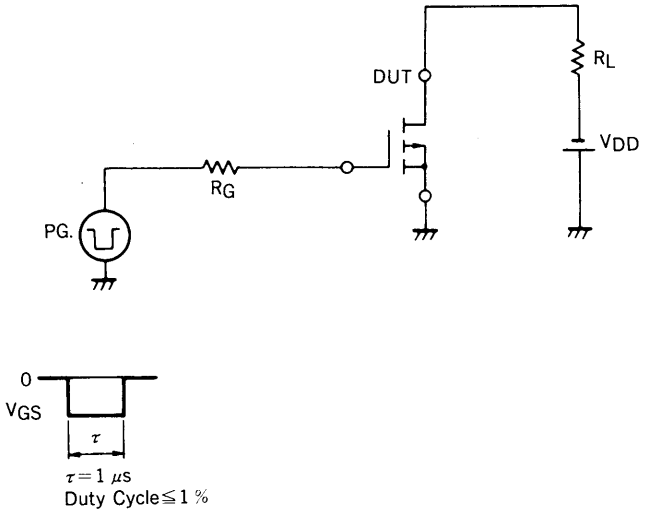
CAPACITANCE
vs. DRAIN TO SOURCE VOLTAGE

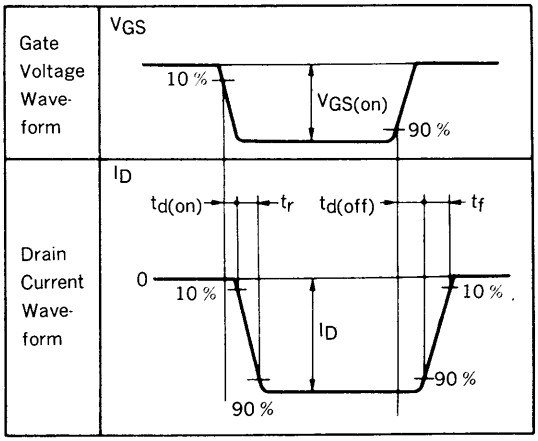


SWITCHING CHARACTERISTICS



SWITCHING TIME MEASUREMENT CIRCUIT AND CONDITIONS





RECOMMENDED SOLDERING CONDITIONS

Solder this product under the following recommended conditions.
For soldering methods or soldering conditions other than those recommended in the table, please consult our NEC salespeople.

Insert type

Soldering method	Soldering conditions	Recommended condition code
Wave soldering	Solder bath temperature: 260 °C max. Soldering time: 10 sec max.	

[MEMO]